

CLAIM AMENDMENTS:

Pending Claims

Claims 1-38 (Canceled).

Claim 39 (New): A method of operating a navigation system comprising the following steps:

(a) transmitting GPS signals from a plurality of satellites;

(b) monitoring the GPS signals transmitted by said satellites using a network of monitoring stations, said monitoring stations transmitting measurement information acquired during said monitoring step to a central station;

(c) determining at said central station the integrity and reliability of the GPS signals transmitted by said satellites as a function of said measurement information received from said monitoring stations;

(d) transmitting signals representing the integrity and reliability of the GPS signals transmitted by said satellites from said central station to said satellites, said integrity signals being in the form of user range accuracy messages, and said reliability signals being in the form of user range accuracy monitoring bits representing the health of each of said satellites;

(e) transmitting updated GPS signals from said satellites, said updated GPS signals taking into account said integrity signals and said reliability signals, said transmitted updated GPS signals including integrity signals in the form of user range accuracy messages;

(f) determining at a receiver the range and position of each of said satellites based on said updated GPS signals received from said satellites by said receiver;

(g) determining at said receiver the integrity of the determined position of each satellite as a function of the integrity signals included in said updated GPS signals;

(h) generating at said receiver a value representing the reliability of said determined positions of said satellites, said reliability value being a function of the integrity signals included in said updated GPS signals;

(i) determining at said receiver the position of said receiver based on the determined ranges and positions of said satellites; and

(j) performing a task utilizing said determined position of said receiver only if said reliability value is above a certain threshold.

Claim 40 (New): The method as recited in claim 39, wherein step (g) comprises performing a self-consistency check.

Claim 41 (New): The method as recited in claim 39, wherein if one of said satellites does not receive reliability signals from said central station for a predetermined length of time, said one satellite sends updated GPS signals containing integrity signals indicating an error or updated GPS signals not containing integrity signals, and said receiver does not rely on updated GPS signals from said one satellite.

Claim 42 (New): A navigation system comprising a plurality of monitoring stations, a central station, a plurality

of satellites, and a receiver comprising a controller for determining the position of said receiver and the reliability of said determined receiver position, wherein each of said satellites transmits GPS signals, said monitoring stations monitor the GPS signals transmitted by said satellites and transmit measurement information acquired during said monitoring to said central station, said central station determines the integrity and reliability of the GPS signals transmitted by said satellites as a function of said measurement information received from said monitoring stations and then transmits signals representing the integrity and reliability of the GPS signals transmitted by said satellites from said central station to said satellites, said integrity signals being in the form of user range accuracy messages, and said reliability signals being in the form of user range accuracy monitoring bits representing the health of each of said satellites, and wherein said satellites transmit updated GPS signals that take into account said integrity signals and said reliability signals, said transmitted updated GPS signals including integrity signals in the form of user range accuracy messages, and said receiver determines the range and position of each of said satellites based on said updated GPS signals received from said satellites, determines the integrity of the determined position of each satellite as a function of the integrity signals included in said updated GPS signals, generates a value representing the reliability of said determined positions of said satellites, said reliability value being a function of the integrity signals included in said updated GPS signals, and determines the position of said receiver based on the determined ranges and positions of said satellites.

Claim 43 (New): The system as recited in claim 42, wherein said receiver is aboard an airplane, said airplane performing a task utilizing said determined position of said receiver only if said reliability value is above a certain threshold.

Claim 44 (New): The system as recited in claim 42, wherein said receiver determines the integrity of the determined position of each satellite by performing a self-consistency check.

Claim 45 (New): The system as recited in claim 39, wherein if one of said satellites does not receive reliability signals from said central station for a predetermined length of time, said one satellite sends updated GPS signals containing integrity signals indicating an error or updated GPS signals not containing integrity signals, and said receiver does not rely on updated GPS signals from said one satellite.

Claim 46 (New): A navigation receiver programmed to perform the following steps:

(a) determining the range and position of each one of a plurality of satellites based on GPS signals received from said satellites;

(b) determining the integrity of the determined position of each satellite as a function of integrity signals included in said GPS signals;

(c) generating a value representing the reliability of said determined positions of said satellites, said reliability value being a function of the integrity signals included in said GPS signals; and

(d) determining the position of said receiver based on the determined ranges and positions of said satellites.

Claim 47 (New): The navigation receiver as recited in claim 46, wherein said navigation receiver is aboard an airplane.